

1/9/1  
DIALOG(R) File 345:Inpadoc/Fam. & Legal Stat  
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9855917

Basic Patent (No,Kind,Date): DE 3942728 C1 910523 <No. of Patents: 011>

PATENT FAMILY:

AUSTRIA (AT)

Patent (No,Kind,Date): AT 140461 E 960815  
IMMUNOLOGISCH AKTIVE PROTEINE VON BORRELIA BURGDORFERI,  
ZUSAMMENHAENGENDE TESTKITS UND IMPFSTOFF (German)  
Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE (DE)  
Author (Inventor): FUCHS RENATE (DE); WILSKE BETTINA (DE);  
PREAC-MURSIC VERA (DE); MOTZ MANFRED (DE); SOUTSCHEK ERWIN (DE)  
Priority (No,Kind,Date): DE 3942728 A 891222; DE 4018988 A  
900613  
Applic (No,Kind,Date): EP 91902687 A 901221  
Addnl Info: 00506868 960717  
IPC: \* C07K-014/00; C12N-015/31; G01N-033/569; A61K-039/02  
CA Abstract No: \* 116(09)082043S; 116(09)082044T  
Derwent WPI Acc No: \* C 91-149753; C 91-222844  
Language of Document: German

AUSTRIA (AT)

Legal Status (No,Type,Date,Code,Text):  
AT 140461 R 960815 AT REF CORRESPONDS TO EP-PATENT  
(ENTSPRICHT EP-PATENT)  
EP 506868 P 960717

AUSTRALIA (AU)

Patent (No,Kind,Date): AU 9170586 A1 910724  
IMMUNOLOGICALLY ACTIVE PROTEINES FROM BORRELIA BURGDORFERI, RELATED  
TEST KITS AND VACCINE (English)  
Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE  
Author (Inventor): FUCHS RENATE; WILSKE BETTINA; PREAC-MURSIC VERA;  
MOTZ MANFRED; SOUTSCHEK ERWIN  
Priority (No,Kind,Date): WO 90EP2282 A 901221; DE 3942728 A  
891222; DE 4018988 A 900613  
Applic (No,Kind,Date): AU 9170586 A 901221  
IPC: \* C07K-013/00; C12N-015/31; G01N-033/569; A61K-039/02  
Derwent WPI Acc No: \* C 91-149753  
Language of Document: English

CANADA (CA)

Patent (No,Kind,Date): CA 2072008 AA 910623  
IMMUNOLOGICALLY ACTIVE PROTEINS FROM BORRELIA BURGDORFERI, RELATED TEST  
KITS AND VACCINE (English; French)  
Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE (DE)  
Author (Inventor): FUCHS RENATE (DE); WILSKE BETTINA (DE);  
PREAC-MURSIC VERA (DE); MOTZ MANFRED (DE); SOUTSCHEK ERWIN (DE)  
Priority (No,Kind,Date): DE 3942728 A 891222; DE 4018988 A  
900613  
Applic (No,Kind,Date): CA 2072008 A 901221  
IPC: \* C12N-015/31; C07K-013/00; G01N-033/569; A61K-039/02  
CA Abstract No: \* 116(09)082043S; 116(09)082044T  
Derwent WPI Acc No: \* C 91-149753; C 91-222844  
Language of Document: English

GERMANY (DE)

Patent (No,Kind,Date): DE 4018988 A1 911219  
IMMUNOLOGISCH AKTIVE PROTEINE VON BORRELIA BURGDORFERI, TESTKITS, DIE  
DIESE PROTEINE ENTHALTEN UND ZUM NACHWEIS VON ANTIKOEPRERN IN  
UNTERSUCHUNGSFLUESSIGKEITEN GEEIGNET SIND, MONOKLONALE ANTIKOEPRER,  
DIE GEGEN DIE IMMUNOLOGISCH AKTIVEN PROTEINE GERICHTET SIND UND DIE  
VERWENDUNG DIESER PROTEINE ALS IMPFSTOFFE GEGEN DURCH  
BORRELIA-STAEEMME HERVORGERUFENE INFESTIONEN (German)  
Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE (DE)

Author (Inventor): FUCHS RENATE DR (DE); WILSKS BETTINA DR (DE);  
 PREAC-MURSIC VERA DR (DE); MOTZ MANFRED DR (DE); SOUTSCHEK ERWIN DR  
 (DE)  
 Priority (No,Kind,Date): DE 4018988 A 900613  
 Applic (No,Kind,Date): DE 4018988 A 900613  
 IPC: \* C07K-015/04; C07K-015/28; C12N-015/31; C12Q-001/28; C12Q-001/68  
 ; A61K-037/02; A61K-039/395; G01N-033/53; G01N-033/566  
 Derwent WPI Acc No: \* C 91-222844  
 Language of Document: German  
 Patent (No,Kind,Date): DE 59010422 C0 960822  
 IMMUNOLOGISCH AKTIVE PROTEINE VON BORRELIA BURGDORFERI,  
 ZUSAMMENHAENGENDE TESTKITS UND IMPFSTOFF (German)  
 Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE (DE)  
 Author (Inventor): FUCHS RENATE (DE); WILSKS BETTINA (DE);  
 PREAC-MURSIC VERA (DE); MOTZ MANFRED (DE); SOUTSCHEK ERWIN (DE)  
 Priority (No,Kind,Date): DE 59010422 A 901221; DE 3942728 A  
 891222; DE 4018988 A 900613; WO 90EP2282 W 901221  
 Applic (No,Kind,Date): DE 59010422 A 901221  
 IPC: \* C07K-014/00; C12N-015/31; G01N-033/569; A61K-039/02  
 CA Abstract No: \* 116(09)0820435; 116(09)082044T  
 Derwent WPI Acc No: \* C 91-149753; C 91-222844  
 Language of Document: German  
 Patent (No,Kind,Date): DE 3942728 C1 910523  
 IMMUNOLOGISCH AKTIVE PROTEINE VON BORRELIA BURGDORFERI, MONOKLONALE  
 ANTIKOERPER, DIE GEGEN DIE IMMUNOLOGISCH AKTIVEN PROTEINE GERICHTET  
 SIND UND DIE VERWENDUNG DIESER PROTEINE ZUM NACHWEIS VON ANTIKOERPERN  
 IN UNTERSUCHUNGSFLUESSIGKEITEN UND ALS IMPFSTOFFE GEGEN DURCH  
 BORRELIA-STAEEMME HERVORGERUFENE INFESTIONEN (German)  
 Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE (DE)  
 Author (Inventor): FUCHS RENATE DR (DE); WILSKS BETTINA DR (DE);  
 PREAC-MURSIC VERA DR (DE); MOTZ MANFRED DR (DE); SOUTSCHEK ERWIN DR  
 (DE)  
 Priority (No,Kind,Date): DE 3942728 A 891222  
 Applic (No,Kind,Date): DE 3942728 A 891222  
 Filing Details: DE C1 D1 Grant of a patent without OS  
 IPC: \* C07K-015/04; C12N-015/63; C07K-015/28; G01N-033/53; G01N-033/68  
 ; A61K-039/02; A61K-049/00; C12Q-001/28; C12P-021/00; C12R-001-19;  
 C07K-003/20  
 CA Abstract No: ; 116(09)0820435  
 Derwent WPI Acc No: ; C 91-149753  
 Language of Document: German

# GERMANY (DE)

Legal Status	(No,Type,Date,Code,Text):	
DE 3942728	P 891222	DE AE DOMESTIC APPLICATION (PATENT APPLICATION) (INLANDSANMELDUNG) (PATENTANMELDUNG)
DE 3942728	P 910523	DE 3942728 A 891222 DE D1 GRANT (NO UNEXAMINED APPLICATION PUBLISHED) PATENT LAW 81 (PATENTERTEILUNG (KEINE OS) PATG. 81)
DE 3942728	P 910523	DE 8100 PUBLICATION OF THE EXAMINED APPLICATION WITHOUT PUBLICATION OF UNEXAMINED APPLICATION (BEKANNTMACHUNG DER ERTEILUNG OHNE VORHERIGE OFFENLEGUNG)
DE 3942728	P 911024	DE 8363 OPPOSITION AGAINST THE PATENT (EINSPRUCH GEGEN DAS PATENT ERHOEBEN)
DE 3942728	P 970116	DE 8339 CEASED/NON-PAYMENT OF THE ANNUAL FEE (WEGEN NICHTZ. D. JAHRESGEB. ERLOSCHEN)
DE 4018988	P 900613	DE AE DOMESTIC APPLICATION (PATENT APPLICATION) (INLANDSANMELDUNG) (PATENTANMELDUNG)
DE 4018988	P 911219	DE 4018988 A 900613 DE A1 LAYING OPEN FOR PUBLIC INSPECTION (OFFENLEGUNG)
DE 4018988	P 970703	DE 8110 REQUEST FOR EXAMINATION PARAGRAPH 44 (EINGANG VON PRUEFUNGSANTRAESEN PAR. 44)

DE 59010422 P 960822 DE REF CORRESPONDS TO (ENTSPRICHT)  
 EP 506868 P 960822  
 DE 59010422 P 970717 DE 8363 OPPOSITION AGAINST THE PATENT  
 (EINSPRUCH GEGEN DAS PATENT ERHOHEN)

# DENMARK (DK)

Patent (No,Kind,Date): DK 506868 T3 960812  
 IMMUNOLOGISK AKTIVE PROTEINER FRA BORRELIA BURGENDORFERI, TILHOERENDE  
 TESTKITS OG VACCINE (Danish)  
 Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE (DE)  
 Author (Inventor): FUCHS RENATE (DE); WILSKE BETTINA (DE);  
 PREAC-MURISIC VERA (DE); MOTZ MANFRED (DE); SOUTSCHEK ERWIN (DE);  
 Priority (No,Kind,Date): DE 3942728 A 891222; DE 4018988 A  
 900613  
 Applic (No,Kind,Date): DK 9191902687 A 901221  
 IPC: \* C07K-013/00; A61K-039/02; C12N-015/31; G01N-033/569  
 CA Abstract No: \* 116(09)082043S; 116(09)082044T  
 Derwent WPI Acc No: \* C 91-149753; C 91-222844  
 Language of Document: Danish

# EUROPEAN PATENT OFFICE (EP)

Patent (No,Kind,Date): EP 506868 A1 921007  
 IMMUNOLOGICALLY ACTIVE PROTEINES FROM BORRELIA BURGENDORFERI, RELATED  
 TEST KITS AND VACCINE (English; French; German)  
 Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE (DE)  
 Author (Inventor): FUCHS RENATE (DE); WILSKE BETTINA (DE);  
 PREAC-MURISIC VERA (DE); MOTZ MANFRED (DE); SOUTSCHEK ERWIN (DE);  
 Priority (No,Kind,Date): WO 90EP2282 W 901221; DE 3942728 A  
 891222; DE 4018988 A 900613  
 Applic (No,Kind,Date): EP 91902687 A 901221  
 Designated States: (National) AT; BE; CH; DE; DK; ES; FR; GB; IT; LI;  
 LU; NL; SE  
 IPC: \* C07K-013/00; C12N-015/31; G01N-033/569; A61K-039/02  
 CA Abstract No: \* 116(09)082043S; 116(09)082044T  
 Derwent WPI Acc No: \* C 91-149753; C 91-222844  
 Language of Document: German  
 Patent (No,Kind,Date): EP 506868 B1 960717  
 IMMUNOLOGICALLY ACTIVE PROTEINES FROM BORRELIA BURGENDORFERI, RELATED  
 TEST KITS AND VACCINE (English; French; German)  
 Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE (DE)  
 Author (Inventor): FUCHS RENATE (DE); WILSKE BETTINA (DE);  
 PREAC-MURISIC VERA (DE); MOTZ MANFRED (DE); SOUTSCHEK ERWIN (DE);  
 Priority (No,Kind,Date): DE 4018988 A 900613; DE 3942728 A  
 891222; WO 90EP2282 W 901221  
 Applic (No,Kind,Date): EP 91902687 A 901221  
 Designated States: (National) AT; BE; CH; DE; DK; ES; FR; GB; IT; LI;  
 LU; NL; SE  
 IPC: \* C07K-014/00; C12N-015/31; G01N-033/569; A61K-039/02  
 CA Abstract No: \* 116(09)082043S; 116(09)082044T  
 Derwent WPI Acc No: \* C 91-149753; C 91-222844  
 Language of Document: German

# EUROPEAN PATENT OFFICE (EP)

Legal Status (No,Type,Date,Code,Text):  
 EP 506868 P 891222 EP AA PRIORITY (PATENT APPLICATION)  
 (PRIORITAET (PATENTANMELDUNG))  
 DE 3942728 A 891222  
 EP 506868 P 900613 EP AA PRIORITY (PATENT APPLICATION)  
 (PRIORITAET (PATENTANMELDUNG))  
 DE 4018988 A 900613  
 EP 506868 P 901221 EP AA PCT-APPLICATION (PCT-ANMELDUNG)  
 WO 90EP2282 W 901221  
 EP 506868 P 901221 EP AE EP-APPLICATION (EUROPAEISCHE  
 ANMELDUNG)  
 EP 91902687 A 901221  
 EP 506868 P 921007 EP AK DESIGNATED CONTRACTING STATES IN  
 AN APPLICATION WITH SEARCH REPORT (IN EINER

ANMELDUNG BENANNTE VERTRAGSSTAATEN)  
 AT BE CH DE DK ES FR GB IT LI LU NL SE  
 EP 506868 P 921007 EP A1 PUBLICATION OF APPLICATION WITH  
 SEARCH REPORT (VEROEFFENTLICHUNG DER  
 ANMELDUNG MIT RECHERCHENBERICHT)  
 EP 506868 P 921007 EP 17P REQUEST FOR EXAMINATION FILED  
 (PRUEFUNGSANTRAG GESTELLT)  
 920619  
 EP 506868 P 930428 EP 17Q FIRST EXAMINATION REPORT  
 (ERSTER PRUEFUNGSBESCHEID)  
 930316  
 EP 506868 P 960717 EP AK DESIGNATED CONTRACTING STATES  
 MENTIONED IN A PATENT SPECIFICATION (IN  
 EINER PATENTSCHRIFT ANGEFUEHRTE BENANNTE  
 VERTRAGSSTAATEN)  
 AT BE CH DE DK ES FR GB IT LI LU NL SE  
 EP 506868 P 960717 EP B1 PATENT SPECIFICATION  
 (PATENTSCHRIFT)  
 EP 506868 P 960717 EP REF IN AUSTRIA REGISTERED AS: (IN  
 AT EINGETRAGEN ALS:)  
 AT 140461 R 960815  
 EP 506868 P 960812 DK T3/REG TRANSLATION OF EP PATENT  
 EP 506868 P 960820 EP ITF IT: TRANSLATION FOR A EP PATENT  
 FILED (IT: DEPOSITO TRADUZIONE DI BREVETTO  
 EUROPEO)  
 ST. DR. CAVATTONI ING. A. RAIMONDI  
 EP 506868 P 960822 EP REF CORRESPONDS TO: (ENTSPRICHT)  
 DE 59010422 P 960822  
 EP 506868 P 960906 EP ET FR: TRANSLATION FILED (FR:  
 TRADUCTION A ETE REMISE)  
 EP 506868 P 960925 EP GBT GB: TRANSLATION OF EP PATENT  
 FILED (GB SECTION 77(6)(A)/1977) (GB:  
 TRANSLATION OF EP PATENT FILED (GB SECT.  
 77(6)(A)/1977))  
 960902  
 EP 506868 P 961031 CH NV/REG NEW AGENT (NEUER  
 VERTRETER/NOUVEAUX MANDATAIRES/NUOVI  
 MANDATARI)  
 PATENTANWALTE SCHAAD, BALASS, MENZL &  
 PARTNER AG  
 EP 506868 P 961201 ES FG2A/REG DEFINITIVE PROTECTION  
 (PROTECCION DEFINITIVA)  
 2092560T3  
 EP 506868 P 970611 EP 26 OPPOSITION FILED (EINSPRUCH  
 EINGELEGT)  
 970411 RAVO DIAGNOSTIKA GMBH ; 970417 IMMUNO  
 AKTIENGESELLSCHAFT  
 EP 506868 P 970801 EP NL1 NL: OPPOSITION HAS BEEN FILED  
 WITH THE EPO (NL: EUROPESE OCTROOIEN,  
 WAARTEGEN OPPOSITIE IS INGESTELD)  
 RAVO DIAGNOSTIKA GMBH;IMMUNO  
 AKTIENGESELLSCHAFT  
 EP 506868 P 981209 EP R26 OPPOSITION FILED (CORRECTION)  
 (EINSPRUCH EINGELEGT (KORR.))  
 970411 RAVO DIAGNOSTIKA GMBH ; 970417 IMMUNO  
 AKTIENGESELLSCHAFT  
 EP 506868 P 990201 EP NL1 NL: OPPOSITION HAS BEEN FILED  
 WITH THE EPO (NL: EUROPESE OCTROOIEN,  
 WAARTEGEN OPPOSITIE IS INGESTELD)  
 RAVO DIAGNOSTIKA GMBH;IMMUNO  
 AKTIENGESELLSCHAFT

SPAIN (ES)

Patent (No,Kind,Date): ES 2092560 T3 961201  
 PROTEINAS INMUNOLOGICAMENTE ACTIVAS DE BORRELIA BURGDORFERI, ESTUCHES  
 DE ENSAYO RELACIONADOS Y VACUNA. (Spanish)  
 Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE  
 Author (Inventor): FUCHS RENATE (DE); WILSKE BETTINA (DE);

PREAC-MURSIC VERA (DE); MOTZ MANFRED (DE); SOUTSCHEK ERWIN (DE)  
Priority (No,Kind,Date): DE 3942728 A 891222; DE 4018988 A  
900613  
Applic (No,Kind,Date): ES 91902687 EP 901221  
Addnl Info: 0506868 EP patent valid in AT  
IPC: \* C07K-014/00; C12N-015/31; G01N-033/569; A61K-039/02  
CA Abstract No: \* 116(09)082043S; 116(09)082044T  
Derwent WPI Acc No: \* C 91-149753; C 91-222844  
Language of Document: Spanish

SPAIN (ES)

Legal Status (No,Type,Date,Code,Text):  
ES 2092560 P 961201 ES FG2A DEFINITIVE PROTECTION  
(PROTECCION DEFINITIVA)  
506868

WORLD INTELLECTUAL PROPERTY ORGANIZATION, PCT (WO)

Patent (No,Kind,Date): WO 9109870 A1 910711  
IMMUNOLOGICALLY ACTIVE PROTEINES FROM BORRELIA BURGDORFERI, RELATED  
TEST KITS AND VACCINE (English)  
Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE (DE)  
Author (Inventor): FUCHS RENATE (DE); WILSKE BETTINA (DE);  
PREAC-MURSIC VERA (DE); MOTZ MANFRED (DE); SOUTSCHEK ERWIN (DE)  
Priority (No,Kind,Date): DE 3942728 A 891222; DE 4018988 A  
900613  
Applic (No,Kind,Date): WO 90EP2282 A 901221  
Designated States: (National) AU; CA; FI; JP; NO; US (Regional) AT;  
BE; CH; DE; DK; ES; FR; GB; GR; IT; LU; NL; SE  
Filing Details: WO 130000 With international search report; Before  
expiration of time limit for amending the claims and to be  
republished in the event of the receipt of the amendments  
IPC: \* C07K-013/00; C12N-015/31; G01N-033/569; A61K-039/02  
CA Abstract No: ; 116(09)082044T  
Derwent WPI Acc No: ; C 91-222844  
Language of Document: German

WORLD INTELLECTUAL PROPERTY ORGANIZATION, PCT (WO)

Legal Status (No,Type,Date,Code,Text):  
WO 9109870 P 891222 WO AA PRIORITY (PATENT)  
DE 3942728 A 891222  
WO 9109870 P 900613 WO AA PRIORITY (PATENT)  
DE 4018988 A 900613  
WO 9109870 P 901221 WO AE APPLICATION DATA (APPL. DATA)  
WO 90EP2282 A 901221  
WO 9109870 P 910711 WO AK DESIGNATED STATES CITED IN A  
PUBLISHED APPLICATION WITH SEARCH REPORT  
(DESIGNATED STATES CITED IN A PUBLISHED APPL.  
WITH SEARCH REPORT)  
AU CA FI JP NO US  
WO 9109870 P 910711 WO AL DESIGNATED COUNTRIES FOR  
REGIONAL PATENTS CITED IN A PUBLISHED  
APPLICATION WITH SEARCH REPORT (DESIGNATED  
COUNTRIES FOR REGIONAL PATENTS CITED IN A  
PUBLISHED APPL. WITH SEARCH REPORT)  
AT BE CH DE DK ES FR GB GR IT LU NL SE  
WO 9109870 P 910711 WO A1 PUBLICATION OF THE INTERNATIONAL  
APPLICATION WITH THE INTERNATIONAL SEARCH  
REPORT (PUB. OF THE INTERNATIONAL APPL. WITH  
THE INTERNATIONAL SEARCH REPORT)  
WO 9109870 P 920622 WO ENP ENTRY INTO THE NATIONAL PHASE  
IN:

1/9/1  
DIALOG(R) File 351:DERWENT WPI  
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008718825

WPI Acc No: 91-222844/199130

Related WPI Acc No: 91-149753

XRAM Acc No: C91-096793

XRPX Acc No: N91-170094

New *Borrelia burgdorferi* proteins - useful as immunoassay reagents and antigens for vaccine prodn.

Patent Assignee: MIKROGEN MOLEKULARBIOLOGISCHE (MIKR-N); MIKROGEN MOLEKULARB (MIKR-N)

Inventor: FUCHS R; MOTZ M; PREAC-MURSIC V; SOUTSCHEK E; WILSKA B

Number of Countries: 019 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Main IPC	Week
WO 9109870	A	19910711					199130 B
AU 9170586	A	19910724					199143
DE 4018988	A	19911219	DE 4018988	A	19900613		199201
EP 506868	A1	19921007	WO 90EP2282	A	19901221	C07K-013/00	199241
			EP 91902687	A	19901221		
EP 506868	B1	19960717	WO 90EP2282	A	19901221	C07K-014/00	199633
			EP 91902687	A	19901221		
DE 59010422	G	19960822	DE 510422	A	19901221	C07K-014/00	199639
			WO 90EP2282	A	19901221		
			EP 91902687	A	19901221		
ES 2092560	T3	19961201	EP 91902687	A	19901221	C07K-014/00	199704

Priority Applications (No Type Date): DE 4018988 A 19900613; DE 3942728 A 19891222

Cited Patents: 3.Jnl.Ref; EP 252641

Patent Details:

Patent	Kind	Lan	Pg	Filing	Notes	Application	Patent
WO 9109870	A						
					Designated States (National): AU CA FI JP NO US		
					Designated States (Regional): AT BE CH DE DK ES	FR GB IT LI LU NL SE	
EP 506868	A1	G	64	Based on		WO 9109870	
					Designated States (Regional): AT BE CH DE DK ES	FR GB IT LI LU NL SE	
EP 506868	B1	G	50	Based on		WO 9109870	
					Designated States (Regional): AT BE CH DE DK ES	FR GB IT LI LU NL SE	
DE 59010422	G			Based on		EP 506868	
					Based on	WO 9109870	
ES 2092560	T3			Based on		EP 506868	

Abstract (Basic): WO 9109870 A

Immunologically active proteins (I) of *Borrelia burgdorferi*, in a form free of other proteins derived from *B. burgdorferi*, are new.

(I) are recombinant proteins with molecular wts. of 17 kD (p17), 22 kD (pC), 41 kD (p41 = flagellin), 100 kD (p100) and 31 kD (OspA). The amino acid sequences of pC, p41, p100 and OspA are given. (I) have been produced by cloning restriction fragments of DNA from *B. burgdorferi* (DSM 5662) in *E. coli*.

USE/ADVANTAGE - (I) are useful (a) as immunoassay reagents for detection of antibodies directed against *Borrelia* spp., esp. for early diagnosis of Lyme borreliosis, and (b) antigens for prodn. of vaccines against infections caused by *Borrelia* spp., esp. Lyme borreliosis. (I) give a good antibody response with little cross-reactivity with related pathogens, esp. the syphilis pathogen *Treponema pallidum*.

In an example, an *E. coli* clone producing a p41 fusion protein was produced by amplifying *B. burgdorferi* DNA by PCR using primers corresp. to the translational start and 3' end sequences of flagellin, digesting the prod. with BamHI and PstI, ligating the resulting fragments into BamHI/PstI-digested pUC8, and transforming *E. coli* JM 109 with the prod. (64pp Dwg.No.0/7)

Abstract (Equivalent): EP 506868 B

Immunologically active proteins (I) of *Borrelia burgdorferi*, in a form free of other proteins derived from *B. burgdorferi*, are new. (I)

are recombinant proteins with molecular wts. of 17 kD (p17), 22 kD (pC), 41 kD (p41 = flagellin), 100 kD (p100) and 31 kD (OspA). The amino acid sequences of pC, p41, p100 and OspA are given. (I) have been produced by cloning restriction fragments of DNA from B.burgdorferi (DSM 5662) in E.coli.

USE/ADVANTAGE - (I) are useful (a) as immunoassay reagents for detection of antibodies directed against Borrelia spp., esp. for early diagnosis of Lyme borreliosis, and (b) antigens for prodn. of vaccines against infections caused by Borrelia spp., esp. Lyme borreliosis. (I) give a good antibody response with little cross-reactivity with related pathogens, esp. the syphilis pathogen Treponema pallidum.

In an example, an E. coli clone produced a p41 fusion protein was produced by amplifying B. burgdorferi DNA by PCR using primers corresp. to the translational start and 3' end sequences of flagellin, digesting the prod. with BamHI and PstI, ligating the resulting fragments into BamHI/PstI-digested pUC8, and transforming E. coli JM 109 with the prod..

(Dwg. 0/7)

Title Terms: NEW; BORRELIA; PROTEIN; USEFUL; IMMUNOASSAY; REAGENT; ANTIGEN; VACCINE; PRODUCE

Derwent Class: B04; D16; S03

International Patent Class (Main): C07K-013/00; C07K-014/00

International Patent Class (Additional): A61K-037/02; A61K-039/02;

C07K-015/04; C12N-015/31; C12Q-001/28; G01N-033/56; G01N-033/569

File Segment: CPI; EPI

Manual Codes (CPI/A-N): B02-V02; B04-B02C; B04-B04A1; B04-B04A5; B04-B04C1;

B04-B04C3; B11-C07A4; B12-K04A; D05-C12; D05-H03B; D05-H04; D05-H07;

D05-H09

Manual Codes (EPI/S-X): S03-E14H4

Chemical Fragment Codes (M1):

\*01\* M421 M423 M710 M781 M903 N102 P831 Q233 V279 V288 V752

Chemical Fragment Codes (M6):

\*03\* M903 P831 Q233 R515 R521 R533 R624 R627 R630 R635

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New immunologically active proteins derived from *Borrelia burgdorferi* sensu stricto and a high density polyethylene sealing cap - useful as vaccine and for quick accurate diagnosis of *Borrelia* infections

Patent Assignee: MIKROGEN MOLEKULARB (MIKR-N)  
Inventor: FUCHS R; MOTZ M; SOUTSCHEK R; WILSKE B  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

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Priority Applications (No Type Date): DE 3942728 A 19891222

Abstract (Basic): DE 3942728 C

New pure immunologically active proteins derived from *Borrelia burgdorferi* are claimed. The proteins are produced from DNA isolated from *Borrelia burgdorferi* (DSM No.5662). They can have molecular weights of 41, 22, 17 or 100 kDa. The following partial sequences are specifically claimed for the 22 kDa protein:

Lys-Ile-Thr-Asp-Ser-Asn -Ala-Thr-Val-Leu-Ala-Val-Lys.

and/or Asp-Leu-Phe-Glu-Ser-Val -Glu-Gly-Leu-Leu-Lys.

The 100 kDa protein preferably has a partial sequence of formula.

Glu-Leu-Asp-Lys-Glu-Lys-Leu-Lys -Asp-Phe-Val-Asn-Leu-Asp

-Leu-Glu-Phe-Val-Asn-Thr. Also claimed are monoclonal antibodies produced from *B. burgdorferi* DSM No.5662.

USE/ADVANTAGE - For the preparation of vaccines against *Borrelia* infections (claimed), e.g. early summer meningoencephalitis or Lyme borreliosis. Because of their purity, the proteins are also useful for quick, economical and accurate diagnosis of such infections, without the risk of confusion with similar diseases such as syphilis. (25pp Dwg.No.0/7)

Title Terms: NEW; IMMUNOLOGICAL; ACTIVE; PROTEIN; DERIVATIVE; POLYETHYLENE; VESSEL; HIGH; DENSITY; POLYETHYLENE; SEAL; CAP; USEFUL; VACCINE; QUICK; ACCURACY; DIAGNOSE; INFECT

Derwent Class: B04; D16

International Patent Class (Additional): A61K-039/02; A61K-049/00;

C07K-015/04; C12N-015/63; C12Q-001/28; G01N-033/53

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Chemical Fragment Codes (M1):

\*01\* M421 M423 M431 M710 M782 M903 N102 N135 P831 Q233 V288 V500 V540 V752

Chemical Fragment Codes (M6):

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